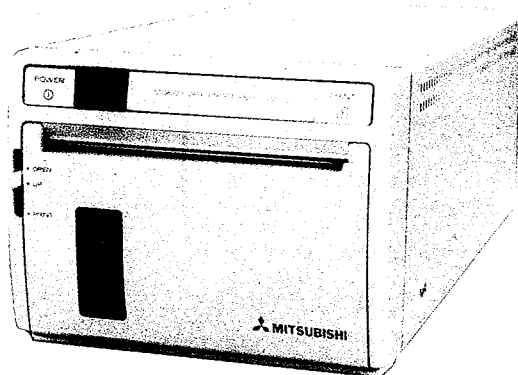


268
MITSUBISHI

Service Manual

VIDEO COPY PROCESSOR



**MODEL
P40U**

- ※ The HEAD LEVER on the FRONT PANEL should be located at "UP" position after servicing.
- ※ Use a white CLEANING PAPER (Parts No.; 857P002010) or a HEAD CLEANING PEN (Parts. No.; 859C425050) for cleaning of the THERMAL HEAD.
- Do not use a russet CLEANING PAPER (Parts No.; 857P001030).
- Because it may damage the THERMAL HEAD.

Before servicing this chassis, it is important that the serviceman reads the " SAFETY PRECAUTIONS" and " PRODUCT SAFETY NOTICE" in this service manual.

Specifications

● Power supply	120V AC 60 Hz
● Power consumption	85 W
● Input terminal	BNC contact plug video signal 1 Vp-p (75 Ω)
● Output terminal	BNC contact plug video signal 1 Vp-p (75 Ω)
● Resolution	(Standard) (H) 640dots x (V) 500lines Side feed (H) 800dots x (V) 500lines
● Gradations	256 gradation
● Printing time	Approx . 4.8sec.
● Operating conditions	Temperature 5-40 °C Humidity 35-80 % RH (No dew)
● Print size	100x75mm (Standard)
● External Dimensions	154 (W) x 125 (H) x 314 (D)mm
● Weight	3.9kg

Features

- High speed printing
- Error display function
- Compact and light weight
- Wired remote control

Standard accessories

BNC/BNC connection cable (2m)	1 piece
Wired remote controller	1 set
AC power cord	1 piece
Thermal paper K65H	1 roll
Cleaning paper	1 sheet
Easy operation label	1 sheet

Optional accessory

Thermal paper K65HM	
---------------------	--

MITSUBISHI ELECTRONICS AMERICA, INC.

5757 Plaza Drive P.O. Box 6007 Cypress, California 90630-0007

Copyright © 1990 Mitsubishi Electronics America, Inc. All Right Reserved.

CONTENT

	PAGE
SAFETY PRECAUTIONS	1
PRODUCT SAFETY NOTICE	1
LEAD DRESSING	2
FEATURES AND FUNCTIONS	3
FRONT PANEL	3
REAR PANEL	3
DISASSEMBLY	4~7
REMOVAL OF CABINET	4
REMOVAL OF DOOR UNIT	4
REMOVAL OF THE FRONT ASSEMBLY	4, 5
REMOVAL OF VIDEO PCB	6
REMOVAL OF CPU PCB	6
REMOVAL OF POWER PCB ASSEMBLY	7
REMOVAL OF PRINTER ASSEMBLY	7
ASSEMBLY	8~11
REPLACEMENT OF FAN MOTOR	8
REPLACEMENT OF STEP MOTOR	8
REPLACEMENT OF PLATEN ROLLER	8, 9
REPLACEMENT OF PAPER HOLDER	9
REPLACEMENT OF THE HEAD ASSEMBLY	10, 11
CLEANING METHOD	12, 13
CLEANING OF THERMAL HEAD	12
CLEANING OF PLATEN ROLLER	13
LOCATION AND CONTROL ON PCB	14
ADJUSTMENT	15~23
INITIAL SETTING	15
ADJUSTMENT OF SUPPLY VOLTAGE (VR971)	16
INITIALIZATION OF EEPROM	16
ADJUSTMENT OF MAIN VOLTAGE/HEAD VOLTAGE (VR971,VR951)	16,17
ADJUSTMENT OF PAPER DETECTION LEVEL (VR301)	18
ADJUSTMENT OF HEAD POSITION DETECTING LEVEL (VR302).....	18
ADJUSTMENT OF VERTICAL SYNCHRONIZATION SEPARATION (VR103)	18
ADJUSTMENT OF HORIZONTAL SYNCHRONOUS PULSE WIDTH (VR107)	19
ADJUSTMENT OF HORIZONTAL AFC (VR104)	19
ADJUSTMENT OF HORIZONTAL POSITION (VR106)	20
ADJUSTMENT OF CLOCK FREQUENCY 2 (L105)	20
ADJUSTMENT OF CLOCK FREQUENCY 1 (L104)	21
ADJUSTMENT OF MONITOR OUTPUT LEVEL (VR105)	22
SUB - CONTRAST/SUB - BRIGHT ADJUSTMENT (VR101, VR102)	23
PARTS LIST	24~26
BLOCK DIAGRAM	27
EXPLODED VIEW SCHEMATIC DIAGRAM INSTRUCTION BOOK	

SAFETY PRECAUTIONS

NOTICE. Observe all cautions and safety related notes located inside the receiver cabinet and on the receiver chassis.

LEAKAGE CURRENT CHECK

Before returning the receiver to the customer, it is recommended that leakage current be measured according to the following methods.

1. Cold Check

With the AC plug removed from the 120V AC source, place a jumper across the two AC plug prongs. Turn the receiver AC switch on. Using an ohm-meter, connect one lead to the jumpered AC plug and touch the other lead to each exposed metal part (metal cabinet, screwheads, metal overlays, etc.), particularly any exposed metal part having a return path to the chassis. Exposed metal parts having a return path to the chassis should have a minimum resistance reading of 1 megohm. Any resistance below this value indicates an abnormality which requires corrective action. Exposed metal parts not having a return path to the chassis will indicate an open circuit.

2. Hot Check

The test sequence, with reference to the measuring circuit in Fig. A, is as follows:

(1) With switch S1 open, the receiver is to be connected to the measuring circuit. Immediately after connection, the leakage current is measured using both positions of switch S2, and with the switching devices in the receiver in all of their operating positions.

(2) Switch S1 is then to be closed, energizing the receiver, and immediately after closing the switch, the leakage current is to be measured using both positions of switch S2, and with the switching devices in the receiver in all of their operating positions.

Current measurements of items (1) and (2) are to be repeated after the receiver has reached thermal stabilization.

The leakage current shall not be more than 0.5 milliamperes.

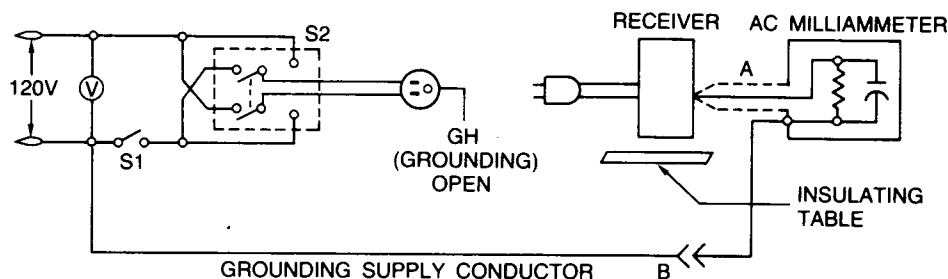


Fig. A

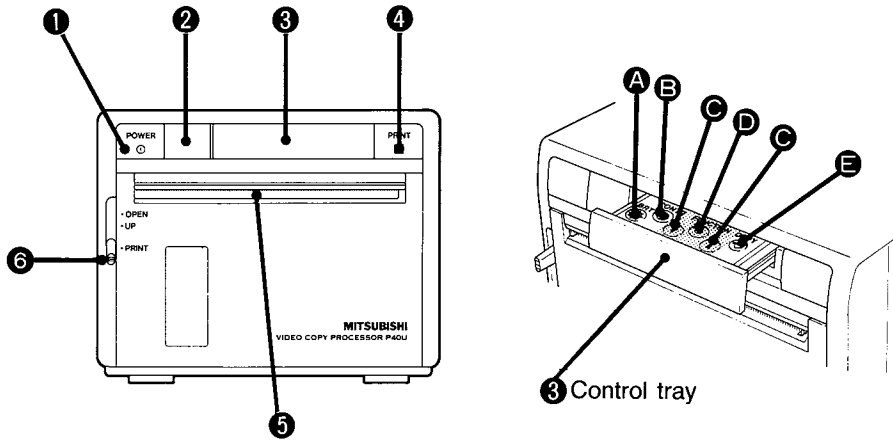
PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in video copy processor have special safety related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this service manual. Electrical components having such features are identified by shading on the schematic diagram and the parts list of this service manual and by marking on the supplementary sheet for this chassis to be issued subsequently.

Therefore replacements for any safety parts should be identical in value and characteristics.

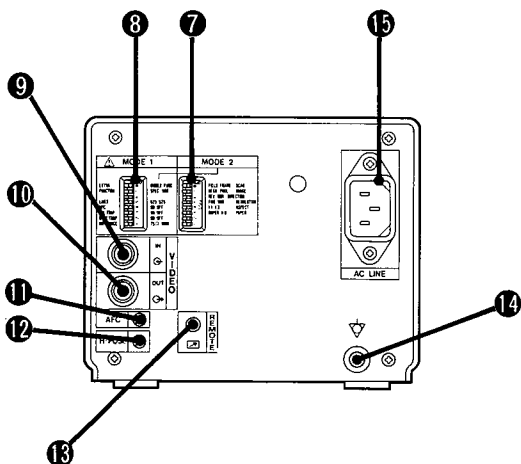
FEATURES AND FUNCTION

Front Panel



	Name	Function
①	POWER switch	Turns on/off the power.
②	Indicator	Displays standby, functions and error messages.
③	Control tray	
	Ⓐ Brightness button	Adjusts brightness.
	Ⓑ Contrast button	Adjusts contrast.
	Ⓒ Function value change button	Changes each function value.
	Ⓓ Function button	Selects functions.
	Ⓔ Copy button	Press this button for additional copies of the previous print-out.
④	Print button	Press this button to memorize and print the picture displayed at that instant.
⑤	Print exit/Cutter	Printed paper will come out through this slot.
⑥	Lever	Front panel open-close/Thermal head up-down

Rear Panel



	Name	Function
⑦	MODE 2 switch	Selects a special function.
⑧	MODE 1 switch	
⑨	VIDEO IN connector (BNC type)	Video signal input
⑩	VIDEO OUT connector (BNC type)	Video signal output (Monitor output)
⑪	AFC control	Adjust AFC
⑫	Horizontal position control	Adjust the horizontal position of a picture.
⑬	Remote control terminal	Terminal to connect the remote controller
⑭	Potential equalization terminal	Makes the connected equipment potential equal.
⑮	Power terminal (AC-IN)	Connect the power cord to this terminal.

DISASSEMBLY

Removal of CABINET

1. Remove four screws securing the CABINET. (Fig.1)
2. Slide the cabinet slightly backward and remove it.

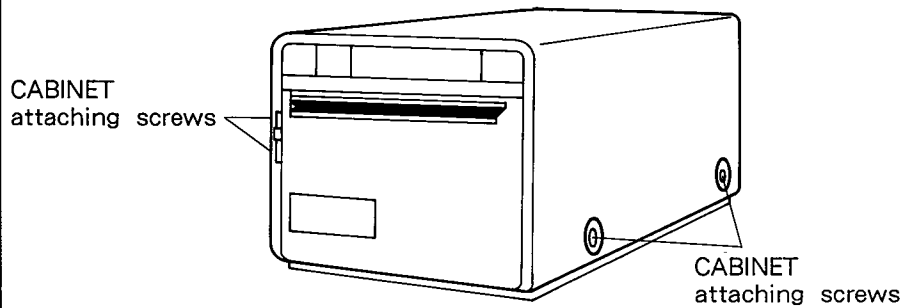


Fig. 1

Removal of DOOR UNIT

1. Set the knob to "OPEN" and open the DOOR.
2. Remove the CAPS.
3. Hold up the PAPER HOLDER slightly and remove the DOOR UNIT.
4. For re-assembling, reverse the procedure.

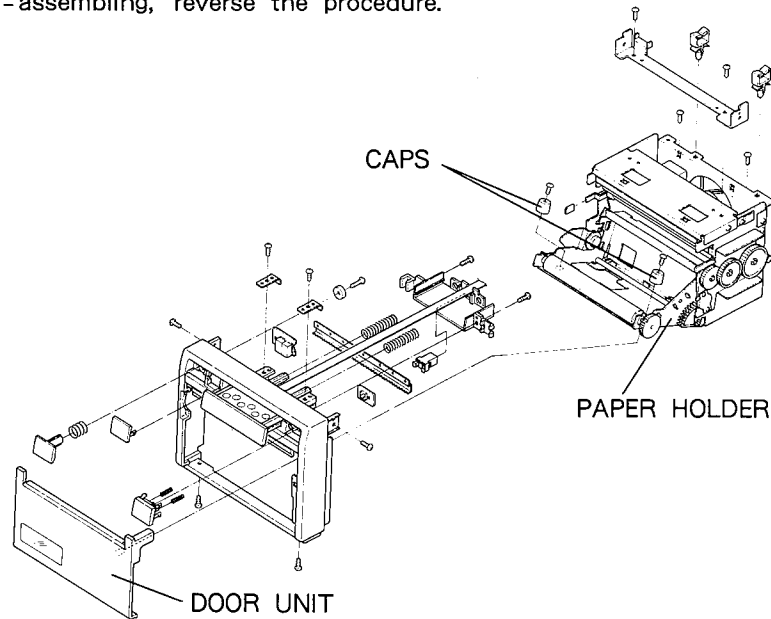


Fig. 2

Removal of the FRONT assembly

1. Remove the CABINET. (Fig. 1).
2. Remove the DOOR UNIT.
3. Disconnect the CONNECTORS **LD**, **PR**, **SW** connected to CPU PCB.
4. Remove the MEMBRANE SWITCH attaching screw connected to the PCB HOLDER. (Fig. 3)
5. Remove the earth wire connected to the PCB HOLDER. (Fig. 3)
6. Remove 4 screws securing the FRONT assembly.(Fig. 4)
7. Remove the KNOB. (Fig. 4)
8. Remove the FRONT Assembly to your side.
(Note)
Remove from the left side so that the right end of the PAPER SHAFT is not hit. (Fig. 2)

**Removal of the
FRONT assembly**

9. For re-assembling, reverse the procedure.

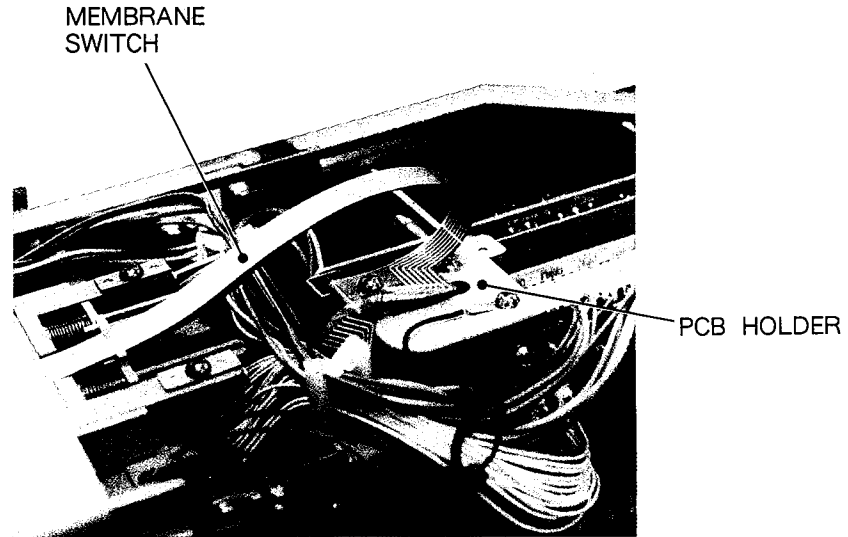


Fig. 3

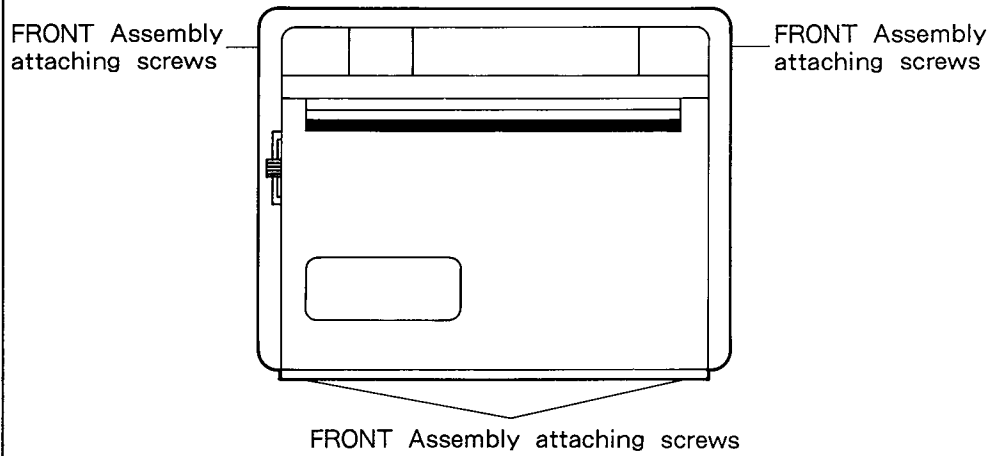


Fig. 4 FRONT assembly

Removal of VIDEO PCB

1. Remove the CABINET. (Fig. 1)
2. Remove the PCB HOLDER. (Fig. 3)
3. Remove the REAR PANEL. (Fig. 5)
4. Remove the screw securing the PCB R BRACKET. (Fig. 5)
5. Disconnect all the connectors connected to VIDEO PCB.
6. Hold up the right side (rear panel side) of VIDEO PCB slightly, slide it to the front and remove it.
7. Remove the screws securing VIDEO PCB.
8. When re-assembling, reverse the procedure.

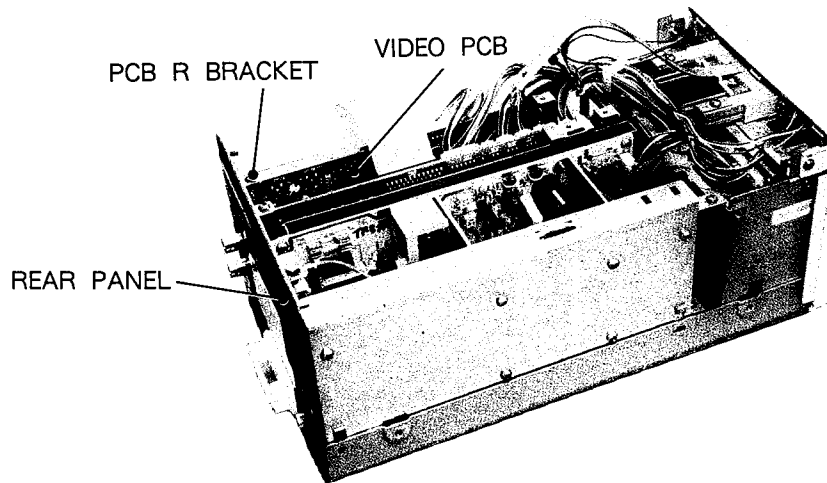


Fig. 5

Removal of CPU PCB

1. Remove the CABINET. (Fig. 1)
2. Remove the PCB HOLDER. (Fig. 3)
3. Remove the REAR PANEL. (Fig. 6)
4. Remove screws securing PCB R BRACKET. (Fig. 6)
5. Disconnect all the connectors connected to CPU PCB.
6. Hold up the right side (rear panel side) of CPU PCB slightly, slide it to the front and remove it.
7. Remove screws securing CPU PCB.
8. When re-assembling, reverse the procedure.

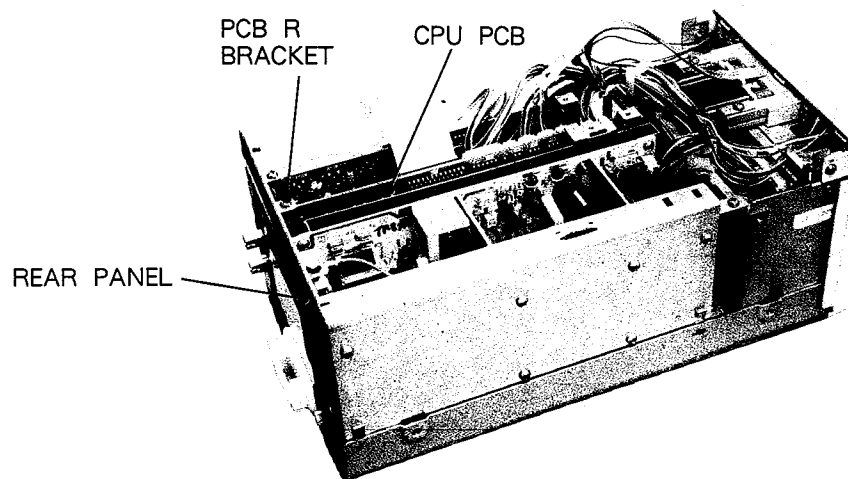


Fig. 6

Removal of POWER PCB assembly

1. Remove the CABINET. (Fig. 1)
2. Remove the PCB HOLDER. (Fig. 3)
3. Remove the screws securing the POWER SWITCH BRACKET. (Fig. 7)
4. Remove B-P SWITCH HOLDER and remove the POWER SWITCH BRACKET. (Fig. 7)
5. Remove screws securing POWER PCB assembly. (Fig. 7)
6. Remove one (top right) of the four screws securing the REAR PANEL. (Fig. 7)
7. Slide the POWER PCB assembly to the front, remove it from the set and disconnect all the connectors.
8. When re-assembling, reverse the procedure.

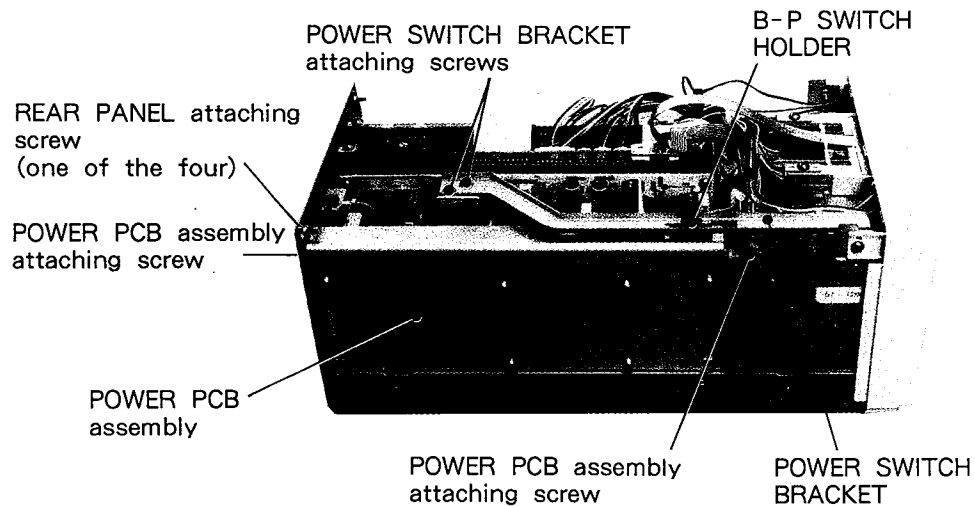


Fig. 7

Removal of PRINTER assembly

1. Remove the CABINET. (Fig. 1)
2. Remove the FRONT assembly
3. Remove the screws securing the POWER SWITCH BRACKET. (Fig. 7)
4. Remove the B-P SWITCH HOLDER and remove the POWER SWITCH BRACKET. (Fig. 7)
5. Remove the screws attaching POWER PCB assembly. (Fig. 7)
6. Disconnect all the connectors connected to the PRINTER UNIT.
7. Disconnect CONNECTORS **DS**, **FM**, **PS**, **SH**, **SM** connected to CPU PCB.
8. Remove the screws securing the PRINTER UNIT (Fig. 8)
9. Slide the PRINTER assembly to the front and remove it.
10. When reassembling, reverse the procedure.

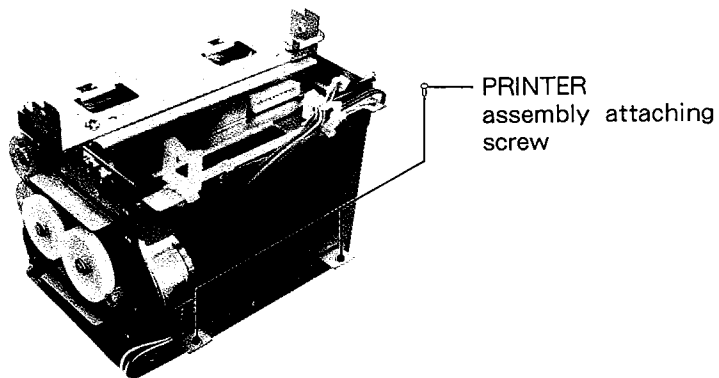


Fig. 8

ASSEMBLY

Replacement of FAN MOTOR

1. Remove the PRINTER UNIT.
2. Remove screws securing the FAN MOTOR. (Fig. 9)
3. When re-assembling, reverse the procedure.

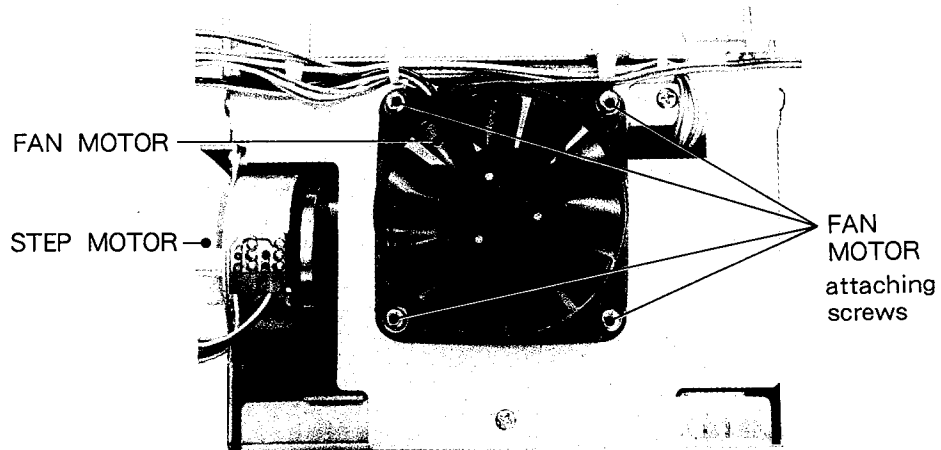


Fig. 9

Replacement of STEP MOTOR

1. Remove the PRINTER UNIT.
2. Remove the STEP MOTOR attaching screws. (Fig. 10)
3. When re-assembling, reverse the procedure.

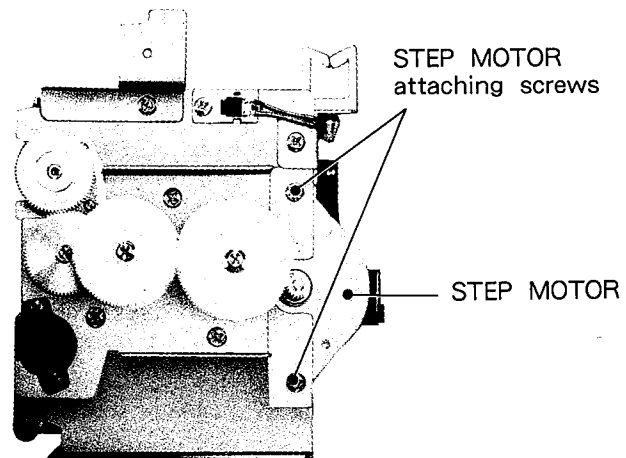


Fig. 10

Replacement of PLATEN ROLLER

1. Remove the DOOR assembly.
2. Remove an E-RING on the left side of the PLATEN ROLLER. (Fig. 11)
3. Remove BEARINGS. (Fig. 11)
4. Slide the PLATEN ROLLER to the right and remove it.
5. When re-assembling, reverse the procedure.
(Note)
Be careful of the direction of bearings.

**Replacement of
PLATEN ROLLER**

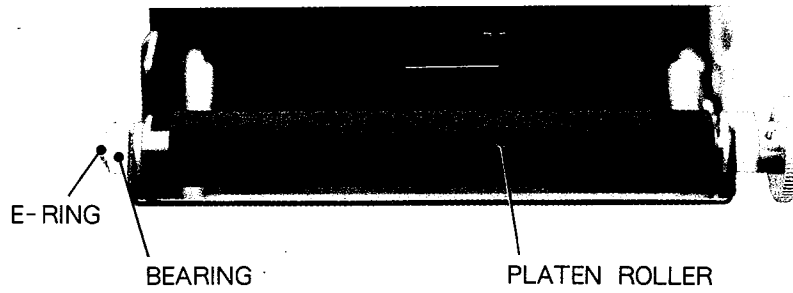


Fig. 11

**Replacement of
PAPER HOLDER**

1. Remove the PRINTER UNIT.
2. Remove E-RINGS (both sides) of the PAPER SHAFT. (Fig. 12)
3. Pull out the PAPER SHAFT to right side.
(Note)
Be careful not to lose the door spring which comes off in the above process. (Fig. 12)
4. Remove the PAPER HOLDER to your side.
5. When re-assembling, reverse the procedure.

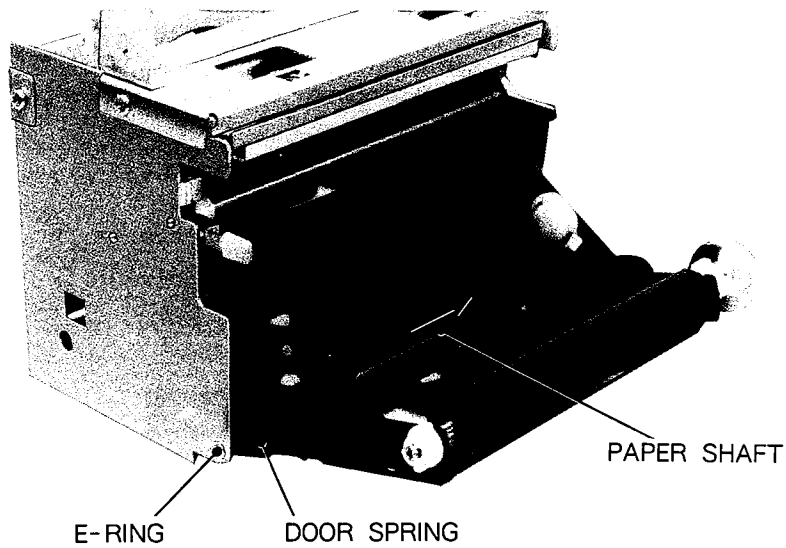


Fig. 12

Replacement of the HEAD assembly

1. Remove the CABINET. (Fig. 1)
2. Remove the FRONT assembly.
3. Remove the screws securing POWER SWITCH BRACKET. (Fig. 7)
4. Remove the B-P SWITCH HOLDER and remove the POWER SWITCH BRACKET. (Fig. 7)
5. Remove the screws securing the UPPER PLATE. (Fig. 13)
(Note)
The HEAD SPRING is held with the UPPER PLATE. Be careful that the HEAD SPRING does not jump up.
6. Disconnect all the connectors connected to the HEAD assembly.
7. Remove the screws securing the HEAD SINK. (Fig. 13)

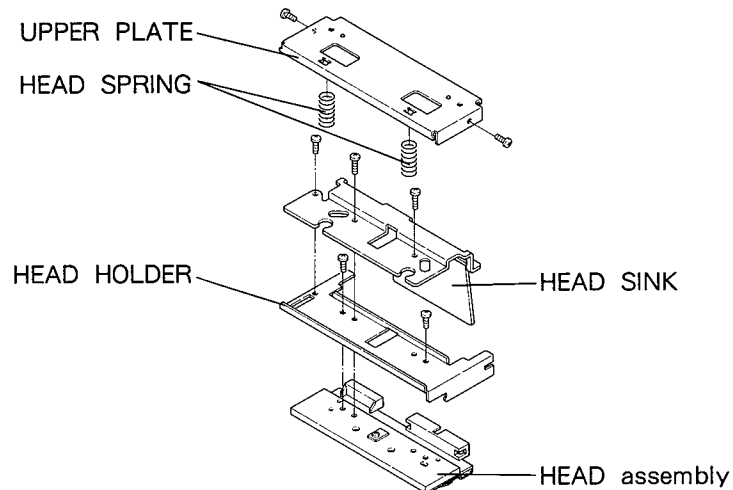


Fig. 13

8. Hold up the front part of the HEAD HOLDER, slide it to your side and remove it.
9. Remove screws securing the HEAD assembly.
(Note)
Be careful not to touch the HEAT GENERATING PART. (Fig. 14)
10. When re-assembling, reverse the procedure.
(Note)
When fixing the HEAD assembly and the HEAD HOLDER with screws, use the GAUGE BAR and TIGHTEN screws after confirming that the holes are aligned.

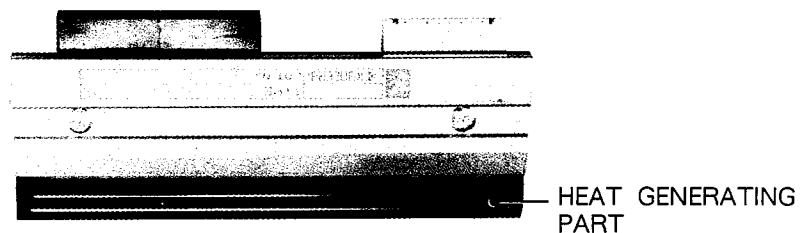


Fig. 14

**Replacement of the
HEAD assembly**

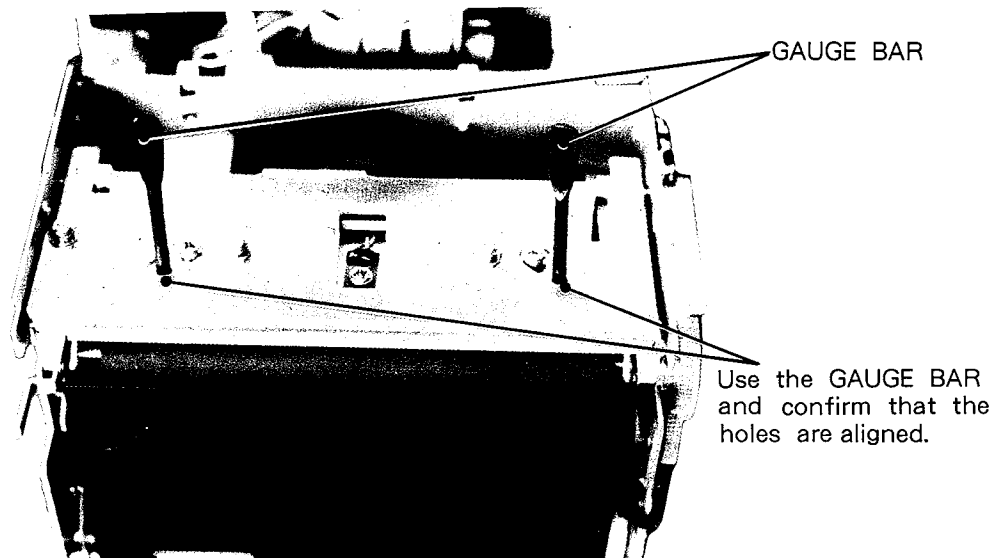


Fig. 15

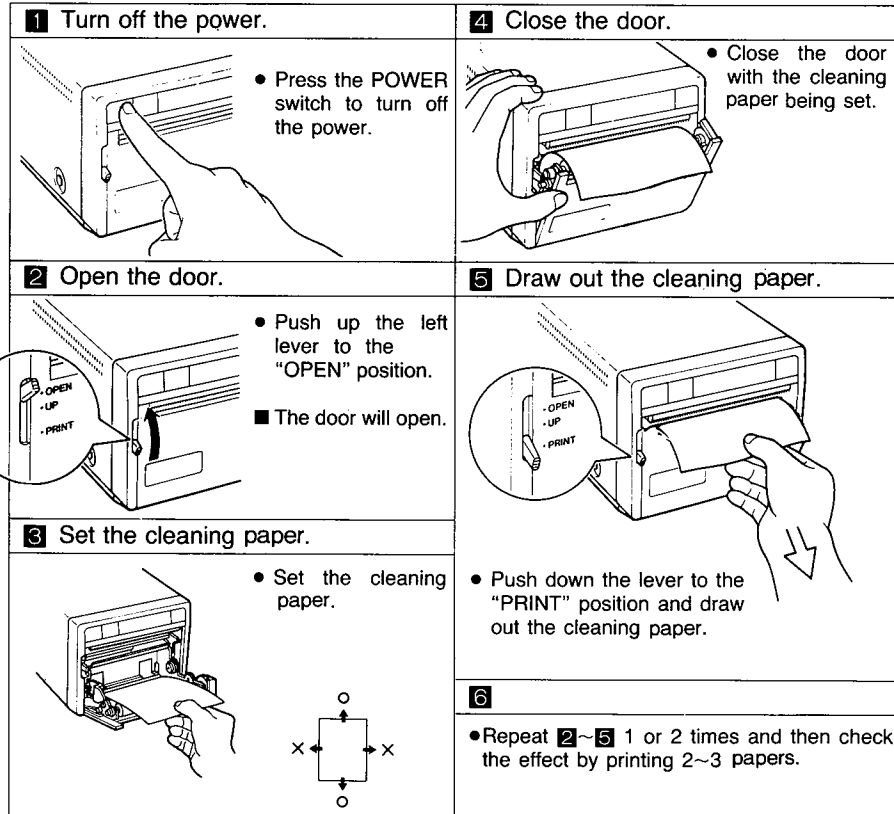
CLEANING METHOD

Cleaning of THERMAL HEAD

When thermal head is dirty with dust or dirt, rain-drop patterns or white vertical lines may appear on the printed picture. In this case, use the attached cleaning sheet or a THERMAL HEAD CLEANER PEN TH-2000 (859C425050) (which can be purchased separately) in the following procedure.

※ Do not use a russet CLEANING PAPER (parts No. ; 857P001030). Because it may damage the THERMAL HEAD.

● How to use the CLEANING PAPER



● How to use THERMAL HEAD CLEANER PEN

1. Draw out the pen from the body and pour appropriate amount of cleaning solvent to the pen body.
 - When the pen core becomes dirty, replace it with the attached pen.
 - (Note) Move the cleaner pen parallel to the heat generating part (brown part).
 - Since the cleaning solvent is inflammable, close the cap after use and be particularly careful against fire.
 - Keep it in a cool and dark place with no exposure to direct sun beams.

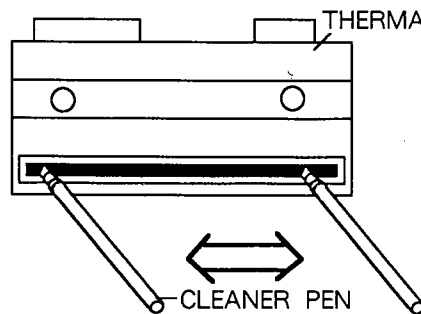


Fig 16

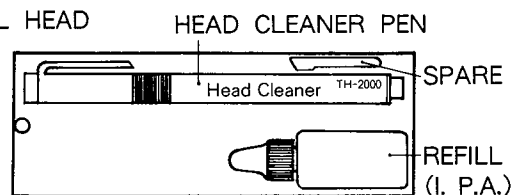


Fig 17 HEAD CLEANER PEN

(Separate purchase jig No. : 859C425050)

Cleaning of PLATEN ROLLER

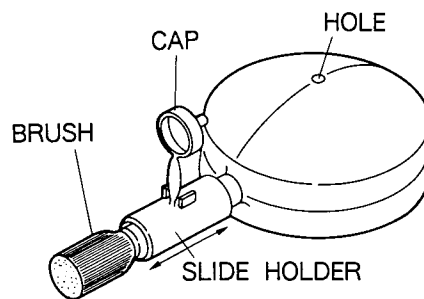
When the PLATEN ROLLER is very dirty with dust and dirt from paper adhered print quality may be devastated. In such cases, clean the platen roller by the following procedure.

1. Open the DOOR or the SET so that the PLATEN ROLLER can be cleaned.
2. Check the PLATEN ROLLER. If dirt or dust is adhered, clean the ROLLER using the blower brush shown in Fig. 19.
3. When the PLATEN ROLLER is particularly dirty, use alcohol and clean it with a tooth brush while taking care not to damage the ROLLER.
4. When the cleaning is finished, check if normal printing is performed.



PLATEN ROLLER

Fig. 18

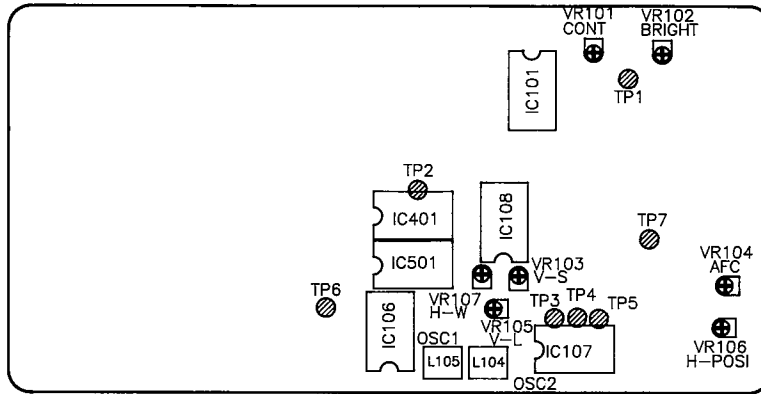


BLOWER BRUSH
(PARTS No. 859D048010)

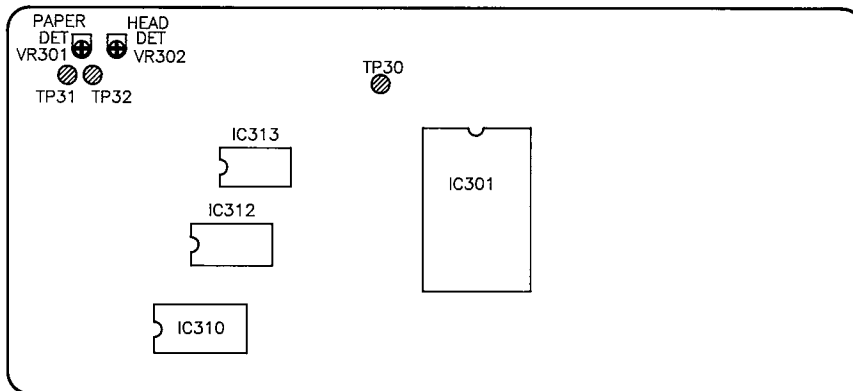
Fig. 19

LOCATION AND CONTROL ON PCB

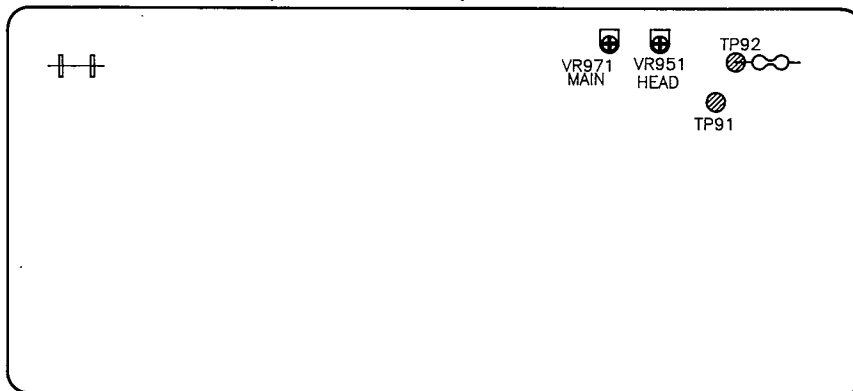
PCB-VIDEO (PARTS SIDE)



PCB-CPU (PARTS SIDE)



PCB-POWER (PARTS SIDE)

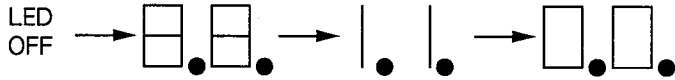
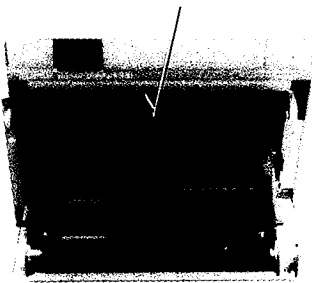


Adjustment

Initial setting


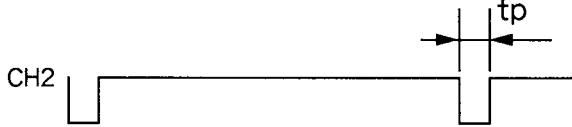

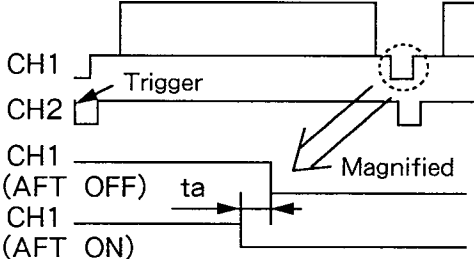
Make the following setting before adjustments.


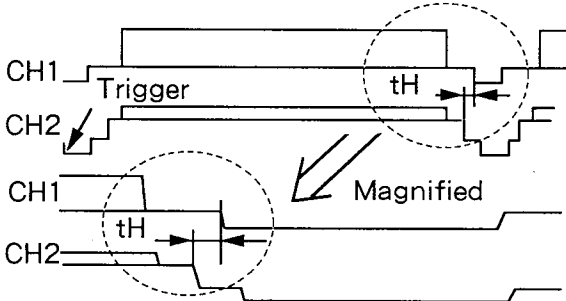
		Setting point		Setting	Setting point		Setting	
S101 MODE1	#8	EXTRA MODE2/FUNC.		MODE2	POWER FRONT- PANEL LEVER REMOTE	OFF/ON PAPER	OFF K65HM	
	#7	FUNCTION SPEC./NOR.		NOR.	VIDEO IN	OPEN/ UP/PRINT INPUT TERMINAL	UP Remote	
	#6	_____		(OFF)	VIDEO OUT	INPUT TERMINAL	Monoscope	
	#5	LINES 525/625		525	AC IN	OUTPUT TERMINAL POWER INPUT	Monitor 120V ± 5% 60Hz	
	#4	AFC OFF/ON		OFF				
	#3	PAL-TRAP OFF/ON		OFF				
	#2	NTSC-TRAP OFF/ON		OFF				
	#1	IMPEDANCE 75Ω/HIGH		75Ω				
	S301 MODE2	#8	SCAN FIELD/FRAME		FRAME			
		#7	IMAGE NEGA./POS1.		POS1.			
		#6	DIRECTION REV./NOR.		NOR.			
		#5	RESOLUTION REV./NOR.		NOR.			
		#4	ASPECT 1:1/4:3		4:3			
		#3	PAPER SUPER/H. D.		H. D.			
#2		_____		OFF				
#1		_____ (BUZZER)		ON				


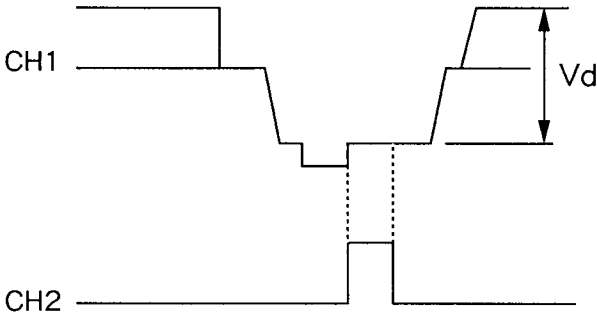
Adjustment item	Adjustment point	Adjustment method
Adjustment of Supply voltage	VR971,TP91 PCB- POWER	<ol style="list-style-type: none"> 1. Connect a voltmeter + to TP91 and – to the metallic board of chassis. Turn VR971 to 90 degree angle counter-clockwise . 2. Turn on POWER SW. 3. Adjust the voltage to $25V \pm 0.5V$ with VR971.
Initialization of EEPROM		<p>* After exchange in IC309 (EEPROM) ,initial setting should be done according to the following.</p> <ol style="list-style-type: none"> 1. Turn off POWER SW. 2. Turn on POWER SW while pressing both BRIGHT button and COPY button . 3. Release BRIGHT button and COPY button after confirming that the LED display changes as follows. <div style="text-align: center;">  </div>
Adjustment of Main voltage/ Head voltage	VR971/VR951, TP91/TP92 PCB- POWER	<ol style="list-style-type: none"> 1. Calculate E1 and E2 with the equation in below from the resistance value indicated on the HEAD. $E2 = 24 \sqrt{R/2075} [v]$ $E1 = E2 + 2.5 [v]$ Refer to Conversion Table. 2. Connect + of a voltmeter to TP91 emitter of Q952 and – to the chassis metal plate and adjust with VR971 so that the reading is $E1 \pm 0.05V$. 3. Connect + of a voltmeter to TP92 and – to the chassis metal plate. 4. Adjust with VR951 so that the reading of the voltmeter is $E2 \pm 0.05V$. 5. Remove the voltmeter. <div style="text-align: center;"> <p>THERMAL HEAD</p>  </div>

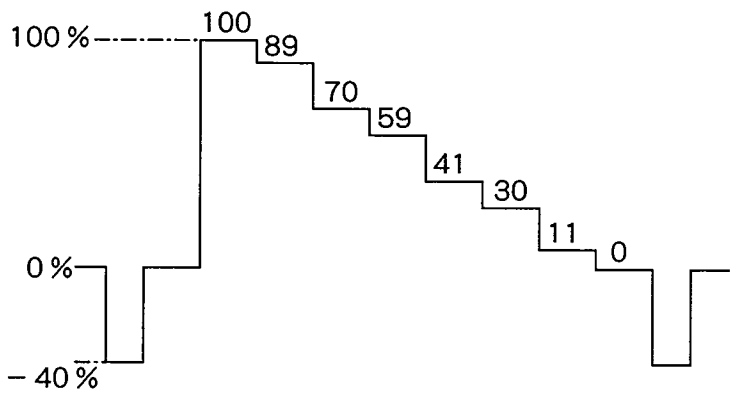
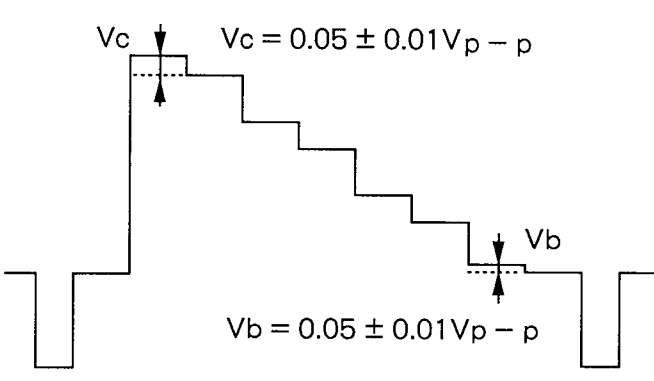
HEAD VOLTAGE TABLE

RESISTANCE (two to four figures)	RESISTANCE (one figure)									Ω
	0	1	2	3	4	5	6	7	8	
R=1760			22. 116 V	22. 122 V	22. 129 V	22. 135 V	22. 141 V	22. 147 V	22. 154 V	22. 160 V
R=1770	22. 166 V	22. 172 V	22. 179 V	22. 185 V	22. 191 V	22. 197 V	22. 204 V	22. 210 V	22. 216 V	22. 222 V
R=1780	22. 229 V	22. 235 V	22. 241 V	22. 247 V	22. 254 V	22. 260 V	22. 266 V	22. 272 V	22. 279 V	22. 285 V
R=1790	22. 291 V	22. 297 V	22. 303 V	22. 310 V	22. 316 V	22. 322 V	22. 328 V	22. 335 V	22. 341 V	22. 347 V
R=1800	22. 353 V	22. 359 V	22. 366 V	22. 372 V	22. 378 V	22. 384 V	22. 390 V	22. 397 V	22. 403 V	22. 409 V
R=1810	22. 415 V	22. 421 V	22. 428 V	22. 434 V	22. 440 V	22. 446 V	22. 452 V	22. 458 V	22. 465 V	22. 471 V
R=1820	22. 477 V	22. 483 V	22. 489 V	22. 496 V	22. 502 V	22. 508 V	22. 514 V	22. 520 V	22. 526 V	22. 533 V
R=1830	22. 539 V	22. 545 V	22. 551 V	22. 557 V	22. 563 V	22. 569 V	22. 576 V	22. 582 V	22. 588 V	22. 594 V
R=1840	22. 600 V	22. 606 V	22. 612 V	22. 619 V	22. 625 V	22. 631 V	22. 637 V	22. 643 V	22. 649 V	22. 655 V
R=1850	22. 662 V	22. 668 V	22. 674 V	22. 680 V	22. 686 V	22. 692 V	22. 698 V	22. 704 V	22. 710 V	22. 717 V
R=1860	22. 723 V	22. 729 V	22. 735 V	22. 741 V	22. 747 V	22. 753 V	22. 759 V	22. 765 V	22. 771 V	22. 778 V
R=1870	22. 784 V	22. 790 V	22. 796 V	22. 802 V	22. 808 V	22. 814 V	22. 820 V	22. 826 V	22. 832 V	22. 838 V
R=1880	22. 845 V	22. 851 V	22. 857 V	22. 863 V	22. 869 V	22. 875 V	22. 881 V	22. 887 V	22. 893 V	22. 899 V
R=1890	22. 905 V	22. 911 V	22. 917 V	22. 923 V	22. 929 V	22. 935 V	22. 942 V	22. 948 V	22. 954 V	22. 960 V
R=1900	22. 966 V	22. 972 V	22. 978 V	22. 984 V	22. 990 V	22. 996 V	23. 002 V	23. 008 V	23. 014 V	23. 020 V
R=1910	23. 026 V	23. 032 V	23. 038 V	23. 044 V	23. 050 V	23. 056 V	23. 062 V	23. 068 V	23. 074 V	23. 080 V
R=1920	23. 086 V	23. 092 V	23. 098 V	23. 104 V	23. 110 V	23. 116 V	23. 122 V	23. 128 V	23. 134 V	23. 140 V
R=1930	23. 146 V	23. 152 V	23. 158 V	23. 164 V	23. 170 V	23. 176 V	23. 182 V	23. 188 V	23. 194 V	23. 200 V
R=1940	23. 206 V	23. 212 V	23. 218 V	23. 224 V	23. 230 V	23. 236 V	23. 242 V	23. 248 V	23. 254 V	23. 260 V
R=1950	23. 266 V	23. 272 V	23. 278 V	23. 284 V	23. 290 V	23. 296 V	23. 302 V	23. 308 V	23. 314 V	23. 320 V
R=1960	23. 326 V	23. 331 V	23. 337 V	23. 343 V	23. 349 V	23. 355 V	23. 361 V	23. 367 V	23. 373 V	23. 379 V
R=1970	23. 385 V	23. 391 V	23. 397 V	23. 403 V	23. 409 V	23. 415 V	23. 421 V	23. 426 V	23. 432 V	23. 438 V
R=1980	23. 444 V	23. 450 V	23. 456 V	23. 462 V	23. 468 V	23. 474 V	23. 480 V	23. 486 V	23. 492 V	23. 497 V
R=1990	23. 503 V	23. 509 V	23. 515 V	23. 521 V	23. 527 V	23. 533 V	23. 539 V	23. 545 V	23. 551 V	23. 556 V
R=2000	23. 562 V	23. 568 V	23. 574 V	23. 580 V	23. 586 V	23. 592 V	23. 598 V	23. 604 V	23. 609 V	23. 615 V
R=2010	23. 621 V	23. 627 V	23. 633 V	23. 639 V	23. 645 V	23. 651 V	23. 656 V	23. 662 V	23. 668 V	23. 674 V
R=2020	23. 680 V	23. 686 V	23. 692 V	23. 697 V	23. 703 V	23. 709 V	23. 715 V	23. 721 V	23. 727 V	23. 733 V
R=2030	23. 738 V	23. 744 V	23. 750 V	23. 756 V	23. 762 V	23. 768 V	23. 773 V	23. 779 V	23. 785 V	23. 791 V
R=2040	23. 797 V	23. 803 V	23. 808 V	23. 814 V	23. 820 V	23. 826 V	23. 832 V	23. 838 V	23. 843 V	23. 849 V
R=2050	23. 855 V	23. 861 V	23. 867 V	23. 872 V	23. 878 V	23. 884 V	23. 890 V	23. 896 V	23. 902 V	23. 907 V
R=2060	23. 913 V	23. 919 V	23. 925 V	23. 931 V	23. 936 V	23. 942 V	23. 948 V	23. 954 V	23. 960 V	23. 965 V
R=2070	23. 971 V	23. 977 V	23. 983 V	23. 988 V	23. 994 V	24. 000 V	24. 006 V	24. 012 V	24. 017 V	24. 023 V
R=2080	24. 029 V	24. 035 V	24. 040 V	24. 046 V	24. 052 V	24. 058 V	24. 064 V	24. 069 V	24. 075 V	24. 081 V
R=2090	24. 087 V	24. 092 V	24. 098 V	24. 104 V	24. 110 V	24. 115 V	24. 121 V	24. 127 V	24. 133 V	24. 138 V
R=2100	24. 144 V	24. 150 V	24. 156 V	24. 161 V	24. 167 V	24. 173 V	24. 179 V	24. 184 V	24. 190 V	24. 196 V
R=2110	24. 202 V	24. 207 V	24. 213 V	24. 219 V	24. 225 V	24. 230 V	24. 236 V	24. 242 V	24. 247 V	24. 253 V
R=2120	24. 259 V	24. 265 V	24. 270 V	24. 276 V	24. 282 V	24. 287 V	24. 293 V	24. 299 V	24. 305 V	24. 310 V
R=2130	24. 316 V	24. 322 V	24. 327 V	24. 333 V	24. 339 V	24. 345 V	24. 350 V	24. 356 V	24. 362 V	24. 367 V
R=2140	24. 373 V	24. 379 V	24. 384 V	24. 390 V	24. 396 V	24. 402 V	24. 407 V	24. 413 V	24. 419 V	24. 424 V
R=2150	24. 430 V	24. 436 V	24. 441 V	24. 447 V	24. 453 V	24. 458 V	24. 464 V	24. 470 V	24. 475 V	24. 481 V
R=2160	24. 487 V	24. 492 V	24. 498 V	24. 504 V	24. 509 V	24. 515 V	24. 521 V	24. 526 V	24. 532 V	24. 538 V
R=2170	24. 543 V	24. 549 V	24. 555 V	24. 560 V	24. 566 V	24. 572 V	24. 577 V	24. 583 V	24. 588 V	24. 594 V
R=2180	24. 600 V	24. 605 V	24. 611 V	24. 617 V	24. 622 V	24. 628 V	24. 634 V	24. 639 V	24. 645 V	24. 651 V
R=2190	24. 656 V	24. 662 V	24. 667 V	24. 673 V	24. 679 V	24. 684 V	24. 690 V	24. 696 V	24. 701 V	24. 707 V
R=2200	24. 712 V	24. 718 V	24. 724 V	24. 729 V	24. 735 V	24. 740 V	24. 746 V	24. 752 V	24. 757 V	24. 763 V
R=2210	24. 768 V	24. 774 V	24. 780 V	24. 785 V	24. 791 V	24. 796 V	24. 802 V	24. 808 V	24. 813 V	24. 819 V
R=2220	24. 824 V	24. 830 V	24. 836 V	24. 841 V	24. 847 V	24. 852 V	24. 858 V	24. 864 V	24. 869 V	24. 875 V
R=2230	24. 880 V	24. 886 V	24. 891 V	24. 897 V	24. 903 V	24. 908 V	24. 914 V	24. 919 V	24. 925 V	24. 930 V
R=2240	24. 936 V	24. 942 V	24. 947 V	24. 953 V	24. 958 V	24. 964 V	24. 969 V	24. 975 V	24. 981 V	24. 986 V
R=2250	24. 992 V	24. 997 V	25. 003 V	25. 008 V	25. 014 V	25. 019 V	25. 025 V	25. 030 V	25. 036 V	25. 042 V
R=2260	25. 047 V	25. 053 V	25. 058 V	25. 064 V	25. 069 V	25. 075 V	25. 080 V	25. 086 V	25. 091 V	25. 097 V
R=2270	25. 102 V	25. 108 V	25. 113 V	25. 119 V	25. 125 V	25. 130 V	25. 136 V	25. 141 V	25. 147 V	25. 152 V
R=2280	25. 158 V	25. 163 V	25. 169 V	25. 174 V	25. 180 V	25. 185 V	25. 191 V	25. 196 V	25. 202 V	25. 207 V
R=2290	25. 213 V	25. 218 V	25. 224 V	25. 229 V	25. 235 V	25. 240 V	25. 246 V	25. 251 V	25. 257 V	25. 262 V
R=2300	25. 268 V	25. 273 V	25. 279 V	25. 284 V	25. 290 V	25. 295 V	25. 301 V	25. 306 V	25. 312 V	25. 317 V
R=2310	25. 323 V	25. 328 V	25. 334 V	25. 339 V	25. 345 V	25. 350 V	25. 356 V	25. 361 V	25. 366 V	25. 372 V
R=2320	25. 377 V	25. 383 V	25. 388 V	25. 394 V	25. 399 V	25. 405 V	25. 410 V	25. 416 V	25. 421 V	25. 427 V
R=2330	25. 432 V	25. 437 V	25. 443 V	25. 448 V	25. 454 V	25. 459 V	25. 465 V	25. 470 V	25. 476 V	25. 481 V
R=2340	25. 487 V	25. 492 V	25. 497 V	25. 503 V	25. 508 V	25. 514 V	25. 519 V	25. 525 V	25. 530 V	25. 536 V
R=2350	25. 541 V	25. 546 V	25. 552 V	25. 557 V	25. 563 V	25. 568 V	25. 574 V	25. 579 V	25. 584 V	25. 590 V
R=2360	25. 595 V	25. 601 V	25. 606 V	25. 611 V	25. 617 V	25. 622 V	25. 628 V	25. 633 V	25. 639 V	25. 644 V
R=2370	25. 649 V	25. 655 V	25. 660 V	25. 666 V	25. 671 V	25. 676 V	25. 682 V	25. 687 V	25. 693 V	25. 698 V
R=2380	25. 703 V	25. 709 V	25. 714 V	25. 720 V	25. 725 V	25. 730 V	25. 736 V	25. 741 V		
R=2390										

Adjustment item	Adjustment point	Adjustment method
Adjustment of Horizontal synchronous pulse width	VR107, TP5 PCB-VIDEO	<ol style="list-style-type: none"> Set # 4 : AFC switch of S101 (MODE) to OFF. Connect CH2 of an oscilloscope to TP5. Trigger in the falling edge of CH2 and magnify the pulse width t_p with delay sweep. Adjust with VR107 so that the pulse width of the waveform below t_p is $t_p = 4.5 \pm 0.1 \mu \text{ sec}$. <p>Probe 10 : 1 Setting of the oscilloscope Vertical axis CH2 : 0.1V/DIV Horizontal axis 20 $\mu \text{ SEC/DIV}$</p> <p style="text-align: right;">DELAY Mode Horizontal axis 1 $\mu \text{ SEC/DIV}$</p>  
Adjustment of Horizontal AFC	VR104, TP1, TP5 PCB-VIDEO	<ol style="list-style-type: none"> Set # 4 : AFC switch of S101 (MODE1) to OFF. Connect CH1 of an oscilloscope to TP1 and CH2 to TP5. Trigger in the falling edge of CH2. Set AFC to ON and adjust with VR104 so that the phase difference between the screen center of the oscilloscope and the falling edge of CH1, $t_a = 0 \pm 0.1 \mu \text{ sec}$. Then, later, set # 4 : AFC SW to OFF. <p>Probe 10 : 1 Setting of the oscilloscope Vertical axis CH1 : 20mV/DIV CH2 : 0.2V/DIV Horizontal axis 20 $\mu \text{ SEC/DIV}$</p> <p style="text-align: right;">DELAY Mode Horizontal axis 1 $\mu \text{ SEC/DIV}$</p>  

Adjustment item	Adjustment point	Adjustment method
Adjustment of Clock frequency 1	L104, TP7 PCB-VIDEO	<ol style="list-style-type: none"> 1. Set # 5: BESOLUTION switch of S3018 (MODE2) to "FINE" 2. Set LEVER to print position. 3. Press BRIGHT button once and make the LED display \square. 4. Connect CH1 of an oscilloscope to TP1 and CH2 to TP7. 5. Trigger in the falling of CH2 and magnify the horizontally synchronous part of CH1. 6. Turn SUB-BRIGHT VR102 clockwise to full. (Note) Be sure to re-adjust SUB-BRIGHT VR102. 7. Turn L104 and adjust so that $t_H = 0.0 \pm 0.1 \mu \text{ sec}$. 8. Push up the LEVER to the Head-up position. <p>Probe 10 : 1 Setting of the oscilloscope Vertical axis CH1 : 20mV/DIV DELAY Mode CH2 : 50mV/DIV Horizontal axis Horizontal axis 10 μ SEC/DIV .5 μ SEC/DIV</p>  

Adjustment item	Adjustment point	Adjustment method
Adjustment of Monitor output level	VR105, TP7 PCB-VIDEO	<ol style="list-style-type: none"> 1. Make this adjustment after disconnecting the monitor connected to the VIDEO OUT terminal and terminate with $75 \Omega \pm 1\%$. 2. Press BRIGHT button and make the LED display \square. 3. Connect CH1 of an oscilloscope to TP7 and CH2 to TP4. 4. Trigger in the falling of CH2 and see the horizontally synchronous part of CH1. 5. Turn SUB-BRIGHT VR102 and SUB-CONTRAST VR101 clockwise to full. (Note) Perform readjustment of SUB-BRIGHT VR102 and SUB-CONTRAST VR101 certainly. 6. Adjust with VR105 so that the voltage in the Fig. below $V_d = 0.714 \pm 0.01V_{p-p}$ <p>Probe 10 : 1 Setting of the oscilloscope Vertical axis CH1 : 20mV/DIV CH2 : 0.1mV/DIV Horizontal axis 10 μ SEC/DIV</p> <div style="text-align: right; margin-bottom: 10px;">  </div> <div style="text-align: center;">  </div>

Adjustment item	Adjustment point	Adjustment method
Sub-Contrast/ Sub-Bright adjustment	VR101/VR102 TP7 PCB-VIDEO	<p>1. Input a monochromatic video signal shown in below to the Video Input terminal.</p> <p>100% = $0.714 \pm 0.01V_{p-p}$</p>  <p>2. Press BRIGHT button and make the LED display $\square\square$.</p> <p>3. Connect CH1 of an oscilloscope to TP7 and CH2 to TP4.</p> <p>4. Trigger in the rising of CH2.</p> <p>5. Adjust with VR102 (V_b adjustment) and VR101 (V_c adjustment) so that the voltages V_b and V_c shown in the Fig. below are the following values.</p> <p>Probe 10:1 Setting of the oscilloscope Vertical axis CH1 : 10mV/DIV CH2 : 0.2mV/DIV Horizontal axis 10 μ SEC/DIV</p> 

PARTS LIST


MODEL : P40U

In order to expedite delivery of replacement part orders.

- Specify :
1. Model number/Serial number
 2. Part number and Description
 3. Quantity

Unless full information is supplied, delay in execution of orders will result.

* : Warranty return items

 : Critical components

MARK	B	C	D	F	G	J	K
TOLERANCE (%)	± 0.1	± 0.25	± 0.5	± 1	± 2	± 5	± 10

MARK	M	N	V	X	Z	P	Q
TOLERANCE (%)	± 20	± 30	+ 10 - 10	+ 40 - 20	+ 80 - 20	+ 100 - 0	+ 30 - 10

MARK	B	C	D	F	G
TOLERANCE (pF)	± 0.1	± 0.25	± 0.5	± 1	± 2

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
INTEGRATED CIRCUITS			
IC101	272P499010	IC	HA11465A
IC102	272P229010	IC	μ PC812C
IC103	272P151010	IC	NJM2217L
IC104	272P086010	IC	MB40576
IC105	272P087010	IC	MB40776
IC106	263P300020	IC	TC74HC00P
IC107	266P091010	IC	SN74LS221N
IC108	266P091010	IC	SN74LS221N
IC109	272P529010	IC	L78N09
IC202	263P133010	IC	MCM514256AZ10/M5
IC204	263P133010	IC	MCM514256AZ10/M5
IC206	263P133010	IC	MCM514256AZ10/M5
IC207	263P184010	IC	UPD65042GF-432-3
IC208	263P185010	IC	UPD65050GF-126-3
IC209	263P186010	IC	TC74HC245AP
IC210	263P186010	IC	TC74HC245AP
IC211	263P186010	IC	TC74HC245AP
IC212	263P134010	IC	HM6225
IC301	263P748010	IC	M50734SP
IC302	266P130020	IC	PST520C
IC303	266P882010	IC (TTL)	SN74LS373N
IC305	263P622020	IC	HM6264ALSP10
IC306	266P834030	IC	SN74LS10N
IC307	266P923040	IC	NJM78L05A
IC308	266P130020	IC	PST520C
IC309	263P686010	IC	M6M80021P
IC310	272P175010	IC	M54567P
IC311	263P869010	IC	μ PD6326C
IC312	263P183010	IC	M54972P
IC313	266P727040	IC	μ PC339C/LM339N
IC314	266P840020	IC	SN74LS00N
IC951	272P240010	IC	M5237L
IC971	272P502010	IC	UPC2412HF
IC972	272P501010	IC	UPC2405HF
IC973	272P500010	IC	HA17431P
TRANSISTORS			
Q 101	260P559030	TRANSISTOR	2SC1740S
Q 102	260P559030	TRANSISTOR	2SC1740S
Q 103	260P560050	TRANSISTOR	2SA933S-Q
Q 104	260P560050	TRANSISTOR	2SA933S-Q
Q 105	260P559030	TRANSISTOR	2SC1740S
Q 106	260P559030	TRANSISTOR	2SC1740S
Q 107	260P603010	TRANSISTOR	DTA124ES/UN4112
Q 108	260P255040	TRANSISTOR	2SA950-Y
Q 109	260P632010	TRANSISTOR	DTC124ES
Q 301	260P632010	TRANSISTOR	DTC124ES
Q 302	260P603010	TRANSISTOR	DTA124ES/UN4112
Q 303	260P632010	TRANSISTOR	DTC124ES
Q 304	260P632010	TRANSISTOR	DTC124ES
Q 306	260P416030	TRANSISTOR	2SC2274-F
Q 307	260P559030	TRANSISTOR	2SC1740S

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
Q 308	260P632010	TRANSISTOR	DTC124ES
Q 309	260P632010	TRANSISTOR	DTC124ES
Q 310	260P255040	TRANSISTOR	2SA950-Y
Q 311	260P255040	TRANSISTOR	2SA950-Y
Q 312	260P632010	TRANSISTOR	DTC124ES
Q 313	260P632010	TRANSISTOR	DTC124ES
Q 314	260P632010	TRANSISTOR	DTC124ES
Q 315	260P560050	TRANSISTOR	2SA933S-Q
Q 316	260P560050	TRANSISTOR	2SA933S-Q
Q 901	260P700010	TRANSISTOR	2SK1462
Q 902	260P167030	TRANSISTOR	2SA673A-C
Q 903	260P559020	TRANSISTOR	2SC1740S-R
Q 904	260P586020	TRANSISTOR	2SB892-T
Q 951	260P559020	TRANSISTOR	2SC1740S-R
Q 952	260P642020	TRANSISTOR	2SB883
Q 955	260P603010	TRANSISTOR	DTA124ES/UN4112
DIODES			
D 101	264P045040	DIODE	1S2471
D 102	264P045040	DIODE	1S2471
D 302	264P045040	DIODE	1S2471
D 303	264P045040	DIODE	1S2471
D 304	264P045040	DIODE	1S2471
D 305	264P045040	DIODE	1S2471
D 306	264P045040	DIODE	1S2471
D 307	264P045040	DIODE	1S2471
D 308	264P045040	DIODE	1S2471
D 309	264P485030	DIODE	RD6. 8FB3
D 310	264P045040	DIODE	1S2471
D 701	264P579020	LIGHT EMITTING DIODE	GL9E030
D 702	264P579020	LIGHT EMITTING DIODE	GL9E030
D 901	264P535010	DIODE	RBV-608
D 902	264P467020	DIODE	EQA02-17A
D 904	264P521030	DIODE	EU 2
D 905	264P045040	DIODE	1S2471
D 907	264P521030	DIODE	EU 2
D 908	264P045040	DIODE	1S2471
D 909	264P486080	DIODE	RD10FB1
D 910	264P578010	DIODE	RG 2A
D 951	264P580020	DIODE	ESAC92M-02F60
D 957	264P045040	DIODE	1S2471
D 971	264P580020	DIODE	ESAC92M-02F60
D 972	264P581020	DIODE	ESAC82M-004F60
D 973	264P470060	DIODE	EQA02-32A/RD33EB2
D 974	264P045040	DIODE	1S2471
D 975	264P484020	DIODE	RD5. 6FB1
D 976	264P045040	DIODE	1S2471
D 977	264P489010	DIODE	RD16FB1
D 978	264P045040	DIODE	1S2471
OTHER SEMICONDUCTORS			
RT901	265P087010	POWER THERMISTOR	10D-18F2
TH902	264P082030	THYRISTOR	CRO2AM

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
FILTERS				MISCELLANEOUS			
CF201	299P119010	CERAMIC RESONATOR			451D046010	AC POWER JACK (3P)	
CF301	299P110010	CERAMIC RESONATOR		F 901	283D085080	FUSE	S5A
COILS				IC304	449P013090	IC SOCKET	
L 101	320P022020	TRAP COIL	4. 43MHz	J 301	451C066010	JACK	
L 102	349P064020	TRAP COIL		K 101	287P036030	RELAY	G5A-237P-DC12V
L 103	321C031040	RF COIL	10 μH-K	PC901	268P049010	PHOTO COUPLER	
L 104	349P179010	OSCILLATOR COIL		PC902	268P049010	PHOTO COUPLER	
L 105	349P179010	OSCILLATOR COIL			246C064010	AC-POWER COARD	
L 201	325C120090	PEAKING COIL	4. 7 μH-K	PRINTED CIRCUIT BOARD ASSY'S			
L 325	411D009020	FERRITE CORE FILTER		936C003004	CPU PCB ASSY		
L 326	411D009020	FERRITE CORE FILTER		936C002004	VIDEO PCB ASSY		
L 327	411D009020	FERRITE CORE FILTER		936C001002	POWER PCB ASSY		
L 328	411D009020	FERRITE CORE FILTER		MECHANICAL PARTS			
L 901	351P047030	LINE FILTER		669D199020	SCREW	D=M4X0. 7	
TRANSFORMERS				669D212020	SCREW	D=3 L=8 83A	
T 901	350P485010	POWER		COSMETIC PARTS			
VARIABLE RESISTORS				PACKING PARTS AND ACCESSORY			
VR101	127C180040	VR-SEMIFIXED	1/5W B1KΩ-M	761C273010	DOOR CATCH		
VR102	127C180050	VR-SEMIFIXED	1/5W B2KΩ-M	734D518010	KNOB		
VR103	127C091010	VR-SEMIFIXED	1/5W B50KΩ-M	771D051010	PAD		
VR104	127C190080	VR-SEMIFIXED	1/5W B10KΩ-M	939C028010	PRINTER UNIT		
VR105	127C080070	VR-SEMIFIXED	1/5W B5KΩ-M	S 101	431C078010	DIP SWITCH	
VR106	127C190070	VR-SEMIFIXED	1/5W B5KΩ-M	S 301	431C078010	DIP SWITCH	
VR107	127C090070	VR-SEMIFIXED	1/5W 85KΩ-M	PACKING PARTS AND ACCESSORY			
VR301	127C181020	VR-SEMIFIXED	1/5W B100KΩ-M	803B673010	PACKING CUSHION		
VR302	127C181020	VR-SEMIFIXED	1/5W B100KΩ-M	801C050010	PACKING CASE		
VR951	127C190090	VR-SEMIFIXED	1/10W B20KΩ-M	831D246030	PACKING SHEET		
VR971	127C190030	VR-SEMIFIXED	1/5W B500-M	831D169010	PACKING BAG		
RESISTORS				831D183040	PACKING BAG		
R 313	103P544010	NETWORK	1/8W 22KΩ-JX4	871C833070	INSTRUCTION BOOK		
R 316	103P574010	NETWORK	1/8W 22KΩ-JX7	939P221060	REMOTE HAND UNIT		
R 317	103P544010	NETWORK	1/8W 22KΩ-JX4	857P001030	CLEANING PAPER		
CAPACITORS AND TRIMMERS				242D381010	CABLE(BNC/BNC)		
C 901	189P083060	C-M-MF/PP-AC	AC250V 0. 22 μF-M	SWITCHES			
C 905	189P083060	C-M-MF/PP-AC	AC250V 0. 22 μF-M	702C916010	CASE SWITCH		
C 906	189P094030	AC CERAMIC		439C030020	MEMBRANE SWITCH		
C 907	189P094030	AC CERAMIC		S 701	432P101010	KEY BOARD SWITCH	
C 908	185D063080	ELECTROLYTIC-C	H200V 820 μF-M	S 901	432C067010	PUSH SWITCH	
C 914	189P027050	C-CERAMIC-AC	FVA1 2200P-M	SWITCHES			
SWITCHES				702C916010	CASE SWITCH		
SWITCHES				439C030020	MEMBRANE SWITCH		
S 701	432P101010	KEY BOARD SWITCH		SWITCHES			
S 901	432C067010	PUSH SWITCH		702C916010	CASE SWITCH		

BLOCK DIAGRAM

